Pregnancy Can Mask Signs of Heart Disease

BY SHERRY BOSCHERT
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SAN FRANCISCO — Maternal peripartum cardiomyopathy, seen in 1 in 3,000 live births, generally carries a good prognosis, Dr. Michael Crawford said at a meeting sponsored by the California chapter of the American College of Cardiology.

Diagnosis of peripartum cardiomyopathy—or of other heart diseases during pregnancy—often is delayed because the symptoms of pregnancy can mimic the heart disease symptoms, noted Dr. Crawford, professor of medicine at the University of California, San Francisco.

A majority of women with peripartum cardiomyopathy recover after delivery, but 10%-20% require heart transplantation and 1%-2% die, data suggest. The patient's ejection fraction 2 months after diagnosis appears to be the best prognostic factor, he said at the meeting, also sponsored by the university.

Maternal MI occurs in 6 out of 100,000 deliveries, three to four times more common than is expected in age-matched nonpregnant women.

Treatment for cardiomyopathy differs for pregnant women compared with nonpregnant patients because some drugs shouldn't be used until after delivery. ACE inhibitors and warfarin are teratogenic, and β-blockers can lead to fetal bradycardia.

"You get by with diuretics, digoxin, and hydralazine during pregnancy" for peripartum cardiomyopathy, Dr. Crawford said.

In a recent study that was conducted at a large medical center, ejection fractions improved by at least 15% in 62% of women with peripartum cardiomyopathy, remained unchanged in 25%, and declined in 13% (Am. Heart J. 2006;152:509-13).

Ejection fractions returned to normal in 45%. Ten percent of patients required transplantation. No patients died during an average 43-month follow-up. "That's encouraging," he noted.

The initial echocardiogram, obtained between 1 month prepartum and 5 months post partum, did not predict which patients required transplantation, nor which had final ejection fractions below or above 50%. "Don't get discouraged with the first echo," Dr. Crawford said. Echocardiograms 2 months later predicted outcomes in that study.

Patients with ejection fractions below 20% probably are headed for transplant. Those with ejection fractions between 20% and 50% should see some improvement but are unlikely to return to normal.

If the 2-month ejection fraction is above 40%, the patient is likely to recover fully (defined as an ejection fraction greater than 50%), he said.

Shortness of breath and decreased exercise capacity, which are symptoms of cardiomyopathy, also are symptoms of a normal pregnancy. Fatigue, orthopnea, and dizziness or syncope, which might be symptoms of other heart disease, also are normal symptoms of pregnancy.

Electrocardiograms in normal pregnancies often detect sinus tachycardia, and may show nonspecific ST-T changes. As the pregnancy advances, the heart's axis shifts more to the left. Physical findings in normal pregnancies may include jugular venous distension, an enlarged left ventricle apex, right ventricle heave, a palpable pulmonary artery pulse, third heart sounds, systolic ejection murmurs, venous hums, or a mammary soufflé noise if you listen over the breast.

"It can be confusing," Dr. Crawford said.

The most common peripartum cardiovascular problem is venous thromboembolism, which is the leading cause of death in pregnancy, he added.

Consider prophylactic medication in women with risk factors (thrombophilia, history of thrombosis, antiphospholipid syndrome, lupus erythematosus, sickle cell anemia, or any kind of heart disease that would lead to thrombus formation).

Coronary artery disease during pregnancy is more common than one might think, perhaps because more women are having children later in life, he added.

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Elevated troponin levels are not normal in pregnancy, and so are a red flag.

Thrombolytics can be used without causing a lot of fetal complications. Around 5% of women with peripartum MI die, "which is high for that age group but a lot less than you might think," Dr. Crawford said. ■

DRUGS, PREGNANCY, AND LACTATION

Vaccines in Pregnancy and Lactation

BY GERALD G. BRIGGS, B. PHARM., FCCP

Vaccines have arguably saved more lives and prevented more diseases than any other class of drug. The American College of Obstetricians and Gynecologists states that vaccination before conception is preferred to vaccination during pregnancy, but the benefits of immunization to the pregnant woman usually outweigh the theoretical risks (Committee Opinion, No. 282, January 2003). Only vaccines recommended for adults of reproductive age are included in the following discussion.

Vaccines are classified as bacterial or viral; whole (killed, inactivated, or live attenuated); or partial microorganisms that can induce antibody formation. Although these vaccines can cause infections of the embryo or fetus, and pregnant women should be informed of the presence of live organisms if they are given a live attenuated virus vaccine, there is no convincing evidence that any vaccine, bacterial or viral, has caused fetal or embryonic harm. Theoretically, however, live attenuated bacterial or viral vaccines could cause disseminated infection in pregnant patients with impaired immunity, such as those with HIV or AIDS.

Indications for two bacterial vaccines (both capsular polysaccharide—quadrivalent meningococcal and polyvalent pneumococcal) are not altered by pregnancy. Vaccinating a pregnant woman with the live attenuated BCG vaccine is generally not recommended, but may be indicated if the woman works in a setting where many patients are infected with resistant strains of TB.

There are two typhoid vaccines available. The oral live attenuated virus vaccine is not recommended during pregnancy, except in cases of the prospective mother's continued, close exposure or travel to typhoid-endemic areas. However, the capsular polysaccharide intramuscular vaccine should be safer in pregnancy because it does not contain live bacteria.

Live attenuated virus vaccines are normally contraindicated in pregnant women because of the known or potential risks from the wild viruses. These include influenza intranasal, measles, mumps, rubella, smallpox, varicella, and yellow fever. Vaccinating in the postpartum period or avoiding conception for at least 30 days after inoculation are two strategies to avoid exposure during pregnancy.

A live attenuated virus vaccine may be indicated in pregnancy under special circumstances. For example, because the risk of fetal vaccinia is low, smallpox vaccine is recommended for pregnant women exposed to smallpox or monkeypox. Yellow fever vaccine also should be given in pregnancy if exposure is unavoidable.

Rubella infection occurring early in gestation is known to cause congenital rubella syndrome. Over a 10-year period, nearly 700 pregnant women were given rubella vaccine. There was no evidence of embryonic/fetal adverse effects, but subclinical infection was found in 2% of the infants from susceptible mothers. A woman given the vaccine 3 weeks after conception had documented embryonic/fetal infection throughout gestation but still delivered a healthy infant.

Although contraindicated, varicella vaccine is thought to present much less risk to the embryo and fetus than from infection with the wild virus. In a pregnancy registry involving more than 800 women who had been vaccinated within 3 months of or anytime during pregnancy, there was no evidence of congenital varicella syndrome (CVS) or malformations consistent with CVS.

Inactivated poliovirus vaccine is not routinely recommended for adults living in the United States; however, it is recommended for unimmunized adults in close contact with a child receiving oral polio vaccine (OPV, which is not available in United States) or who have an increased risk of exposure to OPV or wild poliovirus. Hepatitis A (inactivated) and hepatitis B (recombinant surface antigen) vaccines can be used in pregnancy for pre- and postexposure in women at risk of infection.

The indications for rabies vaccine (killed virus) are not altered by pregnancy. In a prospective study, the vaccine was given to 202 pregnant women who had been exposed to rabies. No increase in maternal or fetal complications was observed, compared with nonexposed controls. There also does not appear to be an increased risk to the embryo or fetus from vaccination within 30 days of conception with quadrivalent human papillomavirus (HPV) recombinant vaccine

However, if pregnancy is detected, ACOG recommends delaying completion of the three-dose vaccination schedule until pregnancy is completed (Committee Opinion, No. 344, September 2006).

Vaccination with inactivated influenza vaccine is considered by ACOG to be an essential element of prenatal care (Committee Opinion, No. 305, November 2004). The vaccine can be given at any time during pregnancy. However, the intranasal influenza vaccine, a live attenuated virus preparation, should not be used in pregnancy.

Excretion of live viruses from vaccines into breast milk may occur. There is a report of tertiary contact vaccinia transmission for smallpox vaccine from a mother to her nursing infant. The effects of the other live virus vaccines on a nursing infant are unknown, but the risk of adverse effects appears to be very low. Vaccines that do not contain live viruses probably carry no risk to the infant.

Pregnancy registries exist for four vaccines. Health care professionals are encouraged to report exposures of pregnant women to the appropriate registry: hepatitis B vaccine (800-670-6126); HPV vaccine (800-986-8999); meningococcal vaccine (800-822-2463); and varicella vaccine (800-986-8999)

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